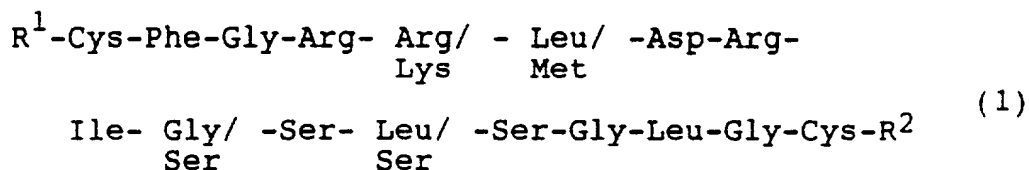


Abstract

5 The cDNA sequence encoding porcine brain
natriuretic peptide and related genes encoding canine and
human peptides with natriuretic activity are disclosed.
The gene is shown to make accessible the DNAs encoding
10 analogous natriuretic peptides in other vertebrate species.
The genes encoding these NPs can be used to effect
modifications of the sequence to produce alternate forms of
the NPs and to provide practical amounts of these proteins.
The NPs of the invention can also be synthesized
15 chemically. The invention peptides have the formula:



20 wherein R^1 is selected from the group consisting of:

(H);

Gly-;

25 Ser-Gly-;

Asp/
Lys/ -Ser-Gly-;
Gly

30 Arg/ Asp/
His/ - Lys/ -Ser-Gly-;
Gln Gly

Met/ Arg/ Asp/
Val - His/ - Lys/ -Ser-Gly-;
Gln Gly

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5 Thr/ - Met/ - Arg/ - Asp/
 Met Val Gln Gly -Ser-Gly-;

 Lys- Thr/ - Met/ - Arg/ - Asp/
 Met Val Gln Gly -Ser-Gly-;

 Pro-Lys- Thr/ - Met/ - Arg/ - Asp/
 Met Val Gln Gly -Ser-Gly-;

10 Ser-Pro-Lys- Thr/ - Met/ - Arg/ - Asp/
 Met Val Gln Gly -Ser-Gly-;

or a 10- to 109-amino acid sequence shown as the native
upstream sequence for porcine, canine or human BNP in
15 Figure 8, or a composite thereof;

R^2 is (OH), NH_2 , or $NR'R''$ wherein R' and R'' are
independently lower alkyl (1-4C) or is

20 Asn/
 Lys

 Asn/ -Val
 Lys

 Asn/ -Val-Leu
 Lys

25 Asn/ -Val-Leu-Arg
 Lys

 Asn/ -Val-Leu-Arg- Arg/
 Lys Lys

30 Asn/ -Val-Leu-Arg- Arg/ - Tyr/
 Lys Lys His

or the amides (NH_2 or $NR'R''$) thereof,
with the proviso that if formula (1) is

35 R^1 -Cys-Phe-Gly-Arg-Arg-Leu-Asp-Arg-
 Ile-Gly-Ser-Leu-Ser-Gly-Leu-Gly-Cys- R^2

and R¹ is Asp-Ser-Gly-, R² cannot be Asn-Val-Leu-Arg-Arg-Tyr.

5 The peptides of the invention can be formulated into pharmaceutical compositions and used to treat conditions associated with high extracellular fluid levels, especially congestive heart failure.

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